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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/590,496      | 06/09/2000  | Stephen M. Lipka     | NAO-0001            | 2489             |

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[REDACTED] EXAMINER

HA, NGUYEN T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2831     |              |

DATE MAILED: 07/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                         |                          |
|------------------------------|-------------------------|--------------------------|
| <b>Office Action Summary</b> | Application No.         | Applicant(s)             |
|                              | 09/590,496              | LIPKA ET AL.<br><i>U</i> |
|                              | Examiner<br>Nguyen T Ha | Art Unit<br>2831         |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 20 February 2002 and 05 April 2002.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-24 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

- |   |  |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 20) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Response to Arguments***

1. Applicant's arguments filed 2/24/02 and 4/5/2002 have been fully considered but they are not persuasive.

With respect to claims 1-24, the applicant makes the following argument:

- a. Saidi et al do not disclose the manganese dioxide can be employed as the active material in the positive electrode.
- b. The teaching of Saidi and Suhara et al do not include the current collector can be made of metal foil.

With respect to a), the examiner pointed out in second non-final rejection dated 10/24/2001 (Paper No. 9) with an anode electrode comprising a manganese dioxide in the compound of lithium. However, Saidi et al clearly discloses the Manganese dioxide deposited on the anode (column 7 lines 49-50).

With respect to b), the teaching of Saidi and Suhara include the current collector being made of metal foil (see column 3 lines 60-65) in Suhara et al.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2 11-13, 15, and 21 rejected under 35 U.S.C. 102(b) as being anticipated by Saidi et al (6,048,645)

Regarding claim 1, Saidi et al discloses the electrochemical cells (figure 7) comprising a positive electrode (14) comprises a current collector (22) and an active material selected from the group consisting of manganese dioxide (column 2 lines 46-48), a negative electrode (12) comprises carbonaceous active material (column 2 lines 49-51), an electrolyte (16), and a separator (16).

Regarding claim 2, Saidi et al discloses the negative electrode further comprises a current collector (18).

Regarding claim 11, Saidi et al discloses the positive electrode comprised of manganese dioxide (column 2 lines 36-42).

Regarding claims 12&13, Saidi et al discloses the manganese dioxide is nanostructured (column 6 lines 62-65).

Regarding claim 15, Saidi et al discloses positive electrode further comprises a binder (column 8 lines 63-64).

Regarding claim 21, Saidi et al discloses the electrochemical cells shown in figure 7 comprising a positive electrode (14) comprises a current collector (22) and an active material selected from the group consisting of manganese dioxide (column 2 lines 46-48), a negative electrode (12) comprises carbonaceous active material (column 2 lines 49-51), an electrolyte (16), and a separator (16).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 3-4, and 8,10,14,16-20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saidi et al (6,048,645) in view of Suhara et al (5,953,204).

Regarding claim 3, Saidi et al discloses all the limitations discussed above with respect to claim 1, except for the current collector is selected from the group consisting of metal foil, metal mesh, and electrically conductive polymer composites and expanded metal. However, Suhara teaches the current collector being a sheet or foil metal (column 3 lines 60-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Saidi electrochemical as taught by Suhara

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to have the current collector being a sheet or foil metal in order to increase the capacitance for the capacitor.

Regarding claim 4, Suhara discloses a capacitor wherein carbonaceous active material comprising nanofibrous material (column 6 lines 4-10).

Regarding claim 8, Suhara discloses a capacitor wherein the negative electrode has a thickness about 50 microns to about 375 microns (column 21 lines 19-20).

Regarding claim 10, Suhara discloses a capacitor wherein the negative electrode further comprises a collection coating (column 21 lines 20-22).

Regarding claim 14, the limitation of the active material is applied to the current collector by thermal spray has been considered, however, the presence of process limitations in product claims, which product does not otherwise patentably distinguish over the prior art, cannot impart patentability to the product. *In re Stephens 145 USPQ 656 (CCPA 1965)*.

Regarding claim 16, the teaching of Suhara includes a capacitor wherein the current collector for the positive electrode is selected from the group consisting of metal foil, metal mesh, electrically conductive polymer composites and expanded metal (column 3 lines 63-65).

Regarding claims 17&18, the teaching of Suhara includes the capacitor wherein the positive electrode has a thickness less than 50-250 microns (column 21 lines 11-14).

Regarding claims 19&20, the teaching of Suhara includes a capacitor wherein the electrolyte is selected from the group consisting of aqueous electrolyte solution,

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organic electrolyte and organic electrolyte solution, wherein the aqueous electrolyte is selected from the group consisting of aqueous solutions of hydroxides of alkali metals, aqueous solutions of carbonates of alkali metal, sulfuric acid and mixtures thereof (column 29 lines 41-46).

Regarding claim 22-24, the teaching of Suhara includes a capacitor wherein the carbonaceous active material is nanofibrous (column 6 lines 4-10).

5. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saidi et al (6,048,645) in view of Suhara et al (5,953,204) as applied to claim 4, and further view of Tennent et al (6,031,711).

Regarding claims 5-7, the teaching of Saidi in view of Suhara includes all the limitations recited to claim 4, except for the carbonaceous active material is carbon fibers less than 10-100nm in diameter. However, Tennent discloses the carbonaceous active material is carbon fibers less than 10-100nm in diameter (column 9 lines 49-54). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have carbon fibers less than 10-100 nm in diameter as taught by Tennent in order to make the supercapacitor useful in electrodes due to their high surface area.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saidi et al (6,048,645) in view of Pyszczek et al (5,415,959).

Regarding claim 9, Saidi et al discloses all the limitations discussed above with respect to claim 1, except for the carbonaceous active metal is non-woven mat. However Pyszczek et al teaches the carbonaceous active material is non-woven mat

(column 1 lines 67-68 and column 2 lines 1-6). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Saidi et al as taught by Pyszczek to have the carbonaceous active material is non-woven mat in order to prevent the internal short circuit condition.

#### **Citation of Relevant Prior Art**

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Randell et al discloses a positive electrode containing the manganese dioxide.

#### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 703-308-

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6023. The examiner can normally be reached on Monday-Friday from 8:30Am to 6:00 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

NH  
June 20, 2002

*Dean A. Reichard 6/26/02*  
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SUPERVISORY PATENT EXAMINER  
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